Biostatisticians

What They Do

Biostatisticians apply statistical and mathematical tools to the study of biological issues. Biostatisticians help design studies that target diverse health, agricultural, and environmental issues, such as predicting disease patterns, evaluating treatment procedures, testing the effectiveness and safety of medications, and measuring other relevant data.

Biostatisticians develop and test complex experimental designs, sampling techniques, and analytical methods. They may design sample studies that use dummy data to troubleshoot the proposed design. They evaluate the statistical methods and procedures used to obtain data in order to ensure validity, applicability, efficiency, and accuracy. They examine theories, such as those of probability and inference in order to discover a mathematical basis for new or improved methods of obtaining and evaluating numerical data. Biostatisticians help interpret analyses and write the statistical summary sections for regulatory documents and research papers.

They help write and edit research results for publication in scientific journals or presentations at scientific meetings. They may help formulate studies and design databases to store data.

They may conduct ongoing studies and long-term trials of manufactured products and drugs to ensure safety and efficacy. They work closely with other staff including scientists, data collection teams, and medical staff. They may supervise staff including other statisticians. Biostatisticians work in pharmaceutical and biotech firms, government, managed care organizations, research organizations, and universities. Biostatisticians must possess excellent written and verbal communication skills to communicate with project team members. They must be knowledgeable of terminology and regulations relating to standard clinical practices.

*Biostatisticians in the biotech industry share characteristics of Statisticians. Detailed descriptions of this occupation may be found in the Occupational Information Network (O*NET) at online.onetcenter.org.*

Important skills, knowledge, and abilities include:

- Mathematics – Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Active Learning – Understanding the implications of new information for both current and future problem-solving and decision-making.
- Complex Problem Solving – Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

Training/Requirements

- Master's or doctorate degree in mathematics or statistics.
- Possess one to four years related experience.

Employment Development Department
State of California
LMID
Labor Market Information Division
"Your Information Source"

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What's the California Job Outlook?

While the Bureau of Labor Statistics does not collect data on Biostatisticians, the occupation listed below is found in the biotechnology industry and has similar duties. The California outlook and wage figures are drawn from all industries and represent an occupation comparable to Biostatisticians.

Standard Occupational Classification	Estimated Number of Workers 2002	Estimated Number of Workers 2012	Average Annual Openings	2005 Wage Range (per hour)
Statisticians				
15-2041	3,300	3,700	130	$25.46 to $45.10

These figures do not include self-employment.

***Average annual openings** include new jobs plus openings due to separations.*

Source: www.labormarketinfo.edd.ca.gov, Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.

Additional Sources of Information

American Statistical Association
(888) 231-3473
www.amstat.org

International Biometric Society
(202) 712-9049
www.tibs.org

The Western North American Region of The International Biometric Society
www.wnar.org

Occupational Information Network (O*NET)
http://online.onetcenter.org

Biotechnology Careers

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